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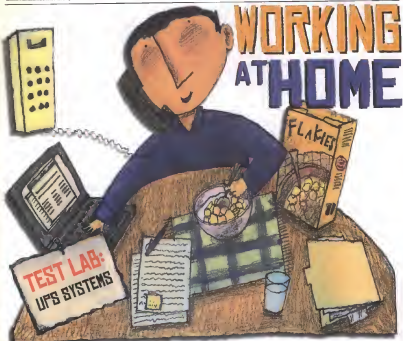
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April 2002

Cover story: Digital video
Lab Test: Broadband sharing

Ad deadline Jan., Feb. 28
Distribution Jan., Mar. 18

May 2002

Cover story: Game viruses
Lab Test: Security

Ad deadline Jan., Mar. 28
Distribution Feb., Apr. 18

June 2002

Cover story: Working the Web
Lab Test: Networks

Ad deadline Jan., Apr. 28
Distribution Feb., May 17

IN THIS ISSUE

Commentary

- 6 From the Editor
- 10 Letters

New & Notable

- 12 What's New
- 32 Annual Net traffic growth still tripling
- 36 Overall Web site dedications rose in 2001, reports Midg
- 39 PC security sales doubled in 2001, claims CERT
- 71 Canadian online shopping in December exceeded estimates
- 72 Some willing to live without the Internet, study finds

Working at Home

- 34 A room of one's own:
Basic principles for working at home
- 24 PC MAGLAME: Mac/Windows dilemma
- 27 Want your Mac to talk PC? Call Dave
- 28 Serving your home office needs:
Client server computing: by this at home

Hands On

- 41 Value-added volts:
Clean up the power with a UPS... your PC will thank you
- 41 Pentium 4 notebooks hit the ground running
- 41 Half-point tweak for pokymore
- 49 UPS specifications and test results

Small Office Technology

- 58 Home office outgrow:
Taking the next steps in expanding your small business
- 58 File server to a box
- 63 Raging against the machine
- 66 Office Suite Training: Extracting meaning from numbers
- 68 Quick Tips: Automating Word

Platform News

- 74 Apple Power G4 towers get a speed boost
- 74 The Penguin on your desktop
- 74 AMD's Athlon XP gets faster
- 85 "Trustworthy computing" greeted with skepticism

Online & Connected

- 86 WebWorlds
- 88 Moving your own Web site: IE extensions to CSS, Part 2
- 89 Building an arcade cabinet: Part 3

Careers & Training

- 87 Book review: Too much attitude too late in dated how-to
- 96 Volunteers take IT overseas
- 96 Java Tutorial: Threads in Java Part 1
- 97 Movies overseas
- 100 Welcome to wireless U!
- 102 Book review: Guide a roadmap for neophyte managers

Reading Services

- 104 Publishing Expo
- 108 Amazon Directory
- 110 Classified

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Abstract *Background:* The purpose of this study was to determine the prevalence of self-reported depression and anxiety among a sample of U.S. adults. *Methods:* Data were obtained from the 2002 National Health and Medical Examination Survey, a nationally representative survey of the U.S. population. *Results:* The prevalence of self-reported depression was 10.3% and the prevalence of self-reported anxiety was 11.1%. *Conclusions:* The prevalence of self-reported depression and anxiety among U.S. adults is high. *Keywords:* Depression, anxiety, prevalence.

- [illegible]

[illegible]

TABLE 1. Summary of the 1997-1998 season for the 1000-hour program

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ROGERS
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- Standard MS Compatible Mouse
- 33MHz 486SX Series
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 - 1.44 Floppy Drive
 - 24x IDE/1394 Drive
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- 1 x DVD Drive
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[illegible]



DOS ruled

You don't devote nearly enough of your pages to DOS. Yes, DOS.

If you think DOS is dead, think again. There are companies out there that sell so-called "thin client" hardware and use DOS either standalone or embedded within Linux and Unix systems. Caldera Systems, the creators of OpenDOS, used to give their OS away for free, but now their spinoff retail company sells it in 10-packs for US\$250. One heck of a price tag for an "obsolete" OS.

There are also many DOS enthusiasts out there (myself being one, albeit of recent vintage). Commercial products for us are rare, but there's plenty of freeware and shareware. These include a Web browser (Nucache) and CD burner software (from Goldenhawk). Also, since DOS is transparent and highly hands-on, there are a zillion little utilities available that enable users to do things that Windows normally conceals under copyright.

Although MS-DOS is almost impossible to obtain nowadays, and OpenDOS is no

longer free, the FreeDOS project people are still working on improving their OS under an open-source GNU license.

So what are the advantages of DOS? The most important is the absence of redundancy. Windows of all versions tends to make a million useless system calls that are clearly intended only to use up resources and drive the upgrade industry. DOS is built on the opposite principle—it does the minimum necessary. My Acornbe browser is faster on a 486 with a 34-MHz modem than my Netscape 4.78 is on a Pentium 200 MHz with a 56Kbps modem.

It's interesting that Acornbe hails from the Czech Republic. From reading the documentation, I get the impression that Czechs run DOS on their Pentiums and reactantly jump up to Windows only when absolutely necessary. They seem to know something you don't.

Neil Kocz

XP error—only in Canada

There is an error that will primarily affect Canadian users of Windows XP. When you make the following selections under Help and Support (the tools to view your computer information and diagnose problems using My Computer) Information then View general information about this computer,

you will receive a "tag country?" error after about two thirds of the information is loaded.

I spent two months trying to solve this problem. You can be sure that if it affected Americans, there would have been instant action to document this problem. However, I have it from a reliable source that Microsoft won't do anything until there's a documented number of incidents, and there just isn't enough of us Canadians to make a ripple in the pond.

The problem can be fixed by going to this Web site: <http://groups.google.com/groups?hl=en&id=6610109&as=276400&sel=6610109>

Jeff Ho re

IT7 replies: Thanks for the tip, Jeff! Following is the message posted at the Web site noted above:

Symptoms

The error will primarily affect Canadian users of Windows XP.

When you make the following selections under Help and Support: Tools to view your computer information and diagnose problems (My Computer) Information View general information about this computer a "TAG_COUNTRYS?" error message may occur during the information callout process. The process will not finish.

Cause

This problem can occur if the language for non-Unicode programs is set to English (Canada). The error originates from a language file that is generated during the setup process, and is used to control some of the Help and Support functionality. It does not affect the normal functionality of the Language for non-Unicode programs process.

Workarounds

Open Control Panel Date, Time, Language and Regional Options Regional and Language Options. Switch to the Advanced tab and change Language for non-Unicode programs to English (United States). You may now collect your system information without error.

OR

Backup the following file, and open the original in a text editor:

`%SystemRoot%\WINNT\INF\EXPLORA\System\app\control\en-us`

Locate the following line in the file: case "??" or TAG_COUNTRYS?; break; Note that in all of the other lines in this section, the "case" number matches the "TAG_COUNTRYS?" number. Change "TAG_COUNTRYS?" to "TAG_COUNTRY?". Save the file.

This Web site collects your system information without error regardless of the language for non-Unicode programs setting. □



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Xybernaut showcases wearable poma PC

Wearable PC maker, Xybernaut Corp. (www.xybernaut.com/poma), has unveiled its first offering for the consumer market. The device includes a computer and a lightweight head-mounted display. The company will market and sell it in North America under the brand name poma for at a suggested retail price of US\$1,499.

The poma is powered by Hitachi's SuperH SP-Bit 128 Mite RISC processor with companion coprocessors, and has 32 MB of RAM and 32 MB of ROM. It runs Windows CE, and incorporates a Compact Flash slot, USB port, custom optical mouse, and removable/rechargeable battery. It weighs 300 g (10.9 oz.).

Wearers have instant on/off Internet access and a head-mounted display that provides a private viewing experience equivalent in quality to a desktop monitor, according to Xybernaut.

The company is accepting advance orders through its Web site, and expects to deliver the first units by April.

—TCP Staff

WHAT'S NEW

Wireless Palm 1705 debuts

Palm (www.palm.com) has launched a new handheld that adds "always on" wireless messaging and email, and Web browsing to Palm's existing lineup of personal information management utilities. The silver 1705 notifies users of new messages via LED, sound, or vibration. In addition to the stylus input, there is an optional Palm Mini Keyboard that slips over the bottom of the 1705 for thumb typing.

The new handheld runs Palm OS

4.1, has 8 MB RAM, 4 MB flash ROM, a 33 Mhz Motorola

68960B 68 processor, rechargeable lithium polymer battery, an expansion slot that accepts Secure Digital and MultiMediaCard removable media, and comes with a USB cable for syncing with a desktop PC.

The Palm 1705 has an estimated street price of US\$449. Purchasers will also need to subscribe to a wireless service to use that functionality (Palm has yet to announce wireless carriers and coverage areas. In Canada, however). The Palm Mini Keyboard has an estimated retail price of US\$19.95.

—TCP Staff



Toshiba intros tiny 10 GB, 20 GB drives

Toshiba Storage Device Division (SDD, at www.hardware.toshiba.com) has introduced its newest family of 1.8-inch embedded hard drives, which are available in 10 GB and 20 GB capacities. The tiny storage units measure 5.4x7.8x5 mm and weigh 51 g and 62 g, respectively—smaller than a credit card and lighter than a traditional pager.

The drives offer data transfer rates of 300 MBps. They are built on Toshiba's 2.5-inch hard drive technology platform, and the company expects they will be integrated into notebook PCs, handhelds, wearable computers, digital video cameras, audio/video players, and used in automotive applications.

The drives offer an areal density of 35.35 GB per square inch—the industry's highest, according to Toshiba—and are designed to withstand an operating shock of up to 300 g and a non-operating shock of 1000 g.

Both models are expected to be available in early March.

—TCP Staff



Let the Sun power your PDA

Mountain-based ECP Global Technologies has developed portable solar chargers, the iSun (www.equip.com), for cell phones and other small electronic devices, such as PDAs and MP3 players.

The charger comes with seven adapter plugs to fit a variety of devices, and users can choose between 6-volt or 12-volt power. According to information on the product's Web site, the iSun can

run devices that require less than 2 W power. Charger can be charged-chained to other compatible electronic devices is available on the Web site.

The iSun comes in two models: the basic iSun, which is aimed at business users and has a matte silver case, and the

iSun Sport, which comes in yellow case. Both models have an estimated retail price of \$119.

—TCP Staff



QuarkXPress 5.0 released

Quark Inc. (www.quark.com) has released QuarkXPress 5.0, the popular page layout application. The upgrade includes a new Layers feature, which lets users isolate items within a document and switch between different versions. In addition, Quark has added the ability to create graphically rich tables within a document. QuarkXPress 5.0 has also been tweaked for designers who create content for multiple media, allowing them to import and export dozens of file formats, including HTML, PDF, and XML.

QuarkXPress 5.0 also has new license management options for multiple-seat installations. Quark License Administrator is a server-based system for creating customized user pools and assigning access privileges to each group. It can be configured to allow remote users to check out software for use off the network and to acquire additional licenses as needed.

QuarkXPress 5.0 is available for both Mac OS (OS X in Client Mode only) and Windows, for a suggested price of US\$995 (US\$294 to upgrade from version 4.x and US\$399 from 3.x).

—TCP Staff





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Folding keyboard for Smartphone

Kyocera Wireless Corp. (www.kyocera-wireless.com) has introduced a

full-size, portable folding

keyboard for the Kyocera

QCP 6035 Smartphone.

Developed with Think

Outside Inc. (www.think-outside.com), it has the

size, feel, and response of

a notebook computer key-

board, but can be folded to fit in a briefcase or even a pocket.

The QCP 6035 is a Palm OS-based device, so requires use of a stylus to input text, which can be tedious when composing longer messages or text files. The keyboard solves this, and can be used while making voice calls. As well, users can customize it by programming command keys. It draws its power from the phone.

It measures 9.5x3.9x2 in. (3.6x5.3x0.8 in.) closed, 15.1x3.1x1 in. (18.8x5.3x0.4 in.) open, and weighs about 224 g (7.9 oz). A phone stand with an integrated interface cable connects the QCP 6035 to the keyboard and weighs approximately 91 g (3.2 oz).

The Kyocera Smartphone Portable Keyboard has an estimated price of US\$99, and can be ordered through the Kyocera Wireless Web site.

—TCP Staff

Cruzer puts pictures, data in your pocket

Sandisk Corporation (www.sandisk.com) has introduced Cruzer, a pocket-size storage device with removable and upgradeable flash memory cards (Secure Digital and MultiMediaCard formats). The device, which measures about 2.6x1.4x2 cm (1x1/2x7/16 in.), can be used to store and transfer digital images and audio files, and data files.

It connects to a computer via USB and features Mac Storage Class (MSC) compliance for true plug-and-play operation. MSC is supported natively in Windows 2000, Mac, and XP, as well as Apple OS 9.x and OS X—which means users do not need to install a driver to use the device. It is also compatible USB-enabled computers running Windows 98 and Mac OS 8.6.

It also features software protocols to protect files.

The Cruzer will initially be available in four capacities—32, 64, 128 and 256 MB. Users will be able to upgrade to higher capacity as they become available, according to Sandisk.

The Cruzer is expected to ship this spring, and will range in price from US\$59.95 to US\$199.95 depending on capacity. The 128 MB device expected to sell for US\$99.95.

—TCP Staff



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A room of one's own

Working at home in the Internet age can be the best job you ever had, if you follow some basic business and technology principles

By Jeff Evans

In 1920, Virginia Woolf wrote "a woman must have money and a room of her own if she is going to write." This sentiment—that in order to work effectively you need the resources to create and time and a space to concentrate on your personal goals—still applies to both genders.

Do you already use computer technology and the Internet to work at home, on your own home-based business, or telework for an employer, or for education, or personal creative expression? If so, you'll know that it takes thought, effort, and experimentation to craft that "room of one's own" and to train yourself (and your housemates) to let you be as productive as possible.

Who does it

According to Statistics Canada, there is at least one personal computer with Internet access in more than seven million of Canada's 12 million households, making the country perhaps the world's most wired society. For most Canadians, using a home computer for some sort of work, whether school work, a home-based business, or work brought home from the office, is already a part of the daily routine.

Many employers embrace telework, where their employees spend at least part of their time working at home or at some other location away from the office. Research by Prodata Partners Ltd. in the summer of 2004 indicated that there were one million home-based businesses in Canada. According to U.S. Commerce Dept. and StatCan 2003 statistics, about 10 million North Americans work out of their homes.

For the home worker, the Internet can be the great equalizer. It provides a vast communications network, a storehouse of information, and possibilities for commerce.

If you are new to the concept of working at home, you'll be hesitant to know that it is possible to equip an amazingly powerful, flexible and dependable home



computing work space for \$3,000—or even less. Here's how.

Set your goals

First, define what work you need to do at home. Realize that to run a full-fledged home business, you're essentially building a smaller version of a corporate IT department as well as a business office. You'll need to find, learn to use, then support all the technology tools necessary for your business—or find a source for reliable and inexpensive technical support. This is an on of establishing the best business practices to run your operation. The process may take time.

Don't assume that you will have your chosen instantly. Also, if your budget is limited, you may have to build your home work space piece by piece, as money permits.

A digital home office "kit" will probably include the following:

A work room

You'll need adequate space (11 sq. ft.—about 100 sq. ft.—or more, per person), light, ventilation, power, and wiring in

place for voice, phone, and Internet access. Ideally, a dedicated room will be available, perhaps a spare bedroom, or a redefined attic, garage or basement.

Note that in some municipalities, home work places are theoretically prohibited under local bylaws. In practice, they are usually tolerated, provided they don't constitute a nuisance to neighbors, or a safety hazard. In the imperfect real world, you start your home office with a kitchen table and a computer shared by the whole family. The eventual goal, however, should be a dedicated work computer in a dedicated work space, for maximum productivity and security.

Security

A lockable door, a power bar with surge suppressor or an unannulable power supply (UPS), lockable files and storage, insurance, burglar alarm, and privacy from view by people passing by the house, or coming to the front door are all good ideas.

The loss or destruction of a computer that contains games and other entertain-

ment files, while inconvenient, isn't a calamity. If that computer contains files vital to your livelihood, its loss is considerably more serious.

Office furniture

As soon as possible, invest in a good quality computer desk with adjustable keyboard tray, ergonomic chair, lockable storage and file cabinets, and adjustable light fixtures.

Computers

According to Mike Chudavsky, systems manager for Hewlett-Packard Canada's micro business division, most home-based business operators want a computer for very basic functions: communications (such as email), Web browsing, word processing, billing, financial management, creating brochures, and possibly a custom application related to the particular business, such as a real estate or medical office.

For these purposes, even a sub \$1,000 "entry-level" system (with a 1 GHz Intel Celeron processor or equivalent, 128 MB RAM, 20-GB hard drive, 32 MB graphics card, CD-RW drive, 10/100 Ethernet card, 56Kbps modem, 15-inch monitor, and color printer), will be "good enough" if the home business needs greater computing horsepower—for professional graphic design or video production, for example—a more powerful computer may be needed.

Ergonomic aids

For maximum comfort, and to avoid work-related disability, consider an ergonomic keyboard, scrolling wheel mouse, and a large (17-inch or more) good quality monitor.

Business software

An suite of office software—such as Microsoft Office, Lotus Smart Suite, WordPerfect Office, StarOffice, or even Microsoft Works—includes modules for word processing, spreadsheets, and presentations.

You may also need specialized business software.

Continued on page 18

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• WORKING AT HOME •

A room of one's own

Continued from page 26

new management or accounting software: Simply Accounting, QuickBooks, or MYOB (Mind Your Own Business) are all designed for small businesses. But if you operate from home, you probably do not have payroll concerns, in which case a product like QuickBooks 2002 might be adequate.

If you use the Internet as a business tool, antivirus and security software, such as Symantec's Norton Internet Security 2002 is highly recommended.

Printers and other peripherals

Depending on your business, at a minimum you will need a printer to make hard copies of documents, presentations, brochures, and the like. Low-end inkjet printers, costing as little as \$50, and sometimes bundled with a new PC, are the most economical option for a home worker. If your business calls for you to print large volumes quickly, you should invest in a laser printer, which offers lower cost per page for black and white output. If you need colour, inkjets are less expensive, with colour laser printers still hovering at \$3,000.

If you use the Internet as a business tool, antivirus and security software, such as Symantec's Norton Internet Security 2002 is highly recommended.

Multifunction devices, which combine fax, photocopy, scanning and printing functions are worth considering if you need some of these features and don't have the space for or budget to purchase several stand-alone devices. Multifunction units are typically built around either a colour inkjet printer or a laser printer. Inkjet-based models will allow you to print documents in colour or to make colour copies, but they are slow and the consumables (ink cartridges) more expensive, compared to devices built with laser printer technology. If your business involves receiving lots of faxes, consider a laser-based multifunction device or stand-alone fax

Continued on page 22

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PC MacLAN: Mac-Windows détente

You're not sure how it happened, but here you are, with a Mac and a PC under the same roof. And now you want to network them.

By David Tanaka

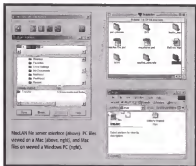
Cross-platform compatibility between Windows PCs and Macs has improved over the years, with many major software vendors (Adobe, Corel, FileMaker, Macromedia, and Microsoft, for example) offering compatible applications for both platforms. This allows a file created on a Windows machine to be opened, edited, and saved on a Mac, and vice versa. It's still not an entirely transparent process, however, with issues like file-name structure, directory structure, native character set, and colour palette differences often throwing small obstacles into the path of cross-platform computing.

PC MacLAN

From: Mirror Systems
www.mirror.com
Price: \$250 (single-user license)

That is why it might make sense to have both a Mac and a Windows machine in your home office. If you work—or hope to work—as the graphic arts, for example, you'll find that industry heavily favours the Mac. On the other hand, general business computing is more often done on Windows PCs.

If your work involves handling files sent to you from outside clients, opening Mac-generated files on a Mac and Windows-generated files in Windows often ensures the smoothest workflow—



and the simplest way of handling a file if a given application doesn't exist on the other platform.

Connecting Macs and PCs into a small network offers a couple of conveniences. It simplifies file sharing: the venerable master/slave method of file transfer is kinder with newer Macs, since they don't come standard with a floppy drive, and maximizes use of a single resource like a printer. But creating a peer-to-peer LAN with mixed systems is just as simple as just plugging the Mac and the PC into

the same network hub. You'll need another piece of software that allows them to communicate with each other.

Faced with this situation in our home office, we decided to test Mirror's PC MacLAN through its peers. PC MacLAN installs on Windows and allows the two platforms to interact in a peer-to-peer environment. (Separate \$6/Mc and NT/2000 versions are available; we used the latter. Also according to the company, the latest version works with Windows XP and Apple OS X.)

Our existing home office network consists of three personal computers, the main desktop unit and a notebook (both running Windows 2000), and an older PC running Windows 98. The two desktop PCs are plugged into a hub, which is connected to high-speed Internet service through an Internet sharing device. A wireless 802.11b access point is also plugged into one of the hub's ports, giving the notebook wireless network and Internet access. Our cross-platform project began when we decided to replace the Windows 98 PC with an iMac.

Our cross-platform project began when we decided to replace the Windows 98 PC with an iMac.

In this particular situation—one Mac and more than one PC—we might have been better off with a product called Dnet. PC MacLAN comes in a single user or a more expensive multi-user license, which you would need for multiple PCs. While we have not tried Dnet, it achieves a similar end, but installs on the Mac, not the PC. However, we were not that concerned about accessing the Mac from the notebook, so in effect, we were dealing with one PC and one Mac.

The initial step was a simple physical task: unplug all the cables from the existing PC system, move it out of the way,

Continued on page 26

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PC: MacLAN; Mac: Windows; Atlanta

Continued from page 34

slide the iMac into place, and plug all the iMac cables in. Since the iMac has built-in Ethernet, once it was plugged into the hub, we had Internet access. However, the Mac remained invisible to the PC and likewise, the PC was hidden from it. Time for PC MacLAN.

PC MacLAN consists of three main components: Client, File Server and Print Server. The Client component

allows your PC to access a Mac network, or in our case, the single iMac on the LAN. The File Server and Print Server portions create servers on the host PC, allowing the Mac to access shared directories or to use a shared printer.

The software installed easily, and the user manual offers step-by-step directions on how to set up and configure the various components. However, it assumes that you know your way around the network settings panels, so you should have a basic familiarity with

Windows and Macintosh network settings.

PC Mac/IBM compatible

PC on Mac clients: In the Windows 2000 My Network Places folder, a new network called Miramar AppleTalk Network appears when you click the Entire Network icon. Browsing down will eventually reveal the iMac, and any Mac folders you have set to be shared.

File Server: Once the software is installed, the file windows are loaded at

Startup and run in the background. You need to be logged into Windows as administrator to make changes in the file server control panel, but here you can set up passwords, permissions, etc.

We set up one folder in my Documents called Transfer as the share folder. Once this was done, we went to the Mac Chooser and clicked on the AppleTalk icon. Here the PC appeared, and when we selected it, we expected to have access to the Transfer folder. Nope, not online. What? In fact, it was another computer.

[illegible]

and passwords in the MacLAN File Server control panel—sharing is as simple as Windows login, and we were in business.

Print services: We have a PostScript inkjet printer connected to the PC's parallel port, and we expected that setting it up would be relatively straightforward, done at once with both Windows and Mac drivers. And that was the case. Using the MacLAN Print Server control panel on the PC, we set up the printer as a shared printer. Again simply sharing the printer under Windows isn't sufficient; the share has to be established in the MacLAN Print Server control panel. This was simple enough, and once done, we could access the printer from the Mac's Chooser.

Other options: PC MacLAN includes a few utilities that make it easier to work with files on both

systems. A file-extension mapping utility sets the proper icon to a PC file so it can be viewed and launched on the Mac.

Going in the other direction, a utility called PC Migrator attaches the correct PC file extensions to a Mac file. Another utility called MacOpener from developer DataViz allows the PC to read Mac-formatted diskettes, CDs, etc.

In use

We found PC MacLAN installed without a hitch. Once we clicked into the fact that sharing had to be established in the PC MacLAN control panel rather than just using native Windows, sharing folders and printers was a breeze.

On the Mac, we double-clicked Word, Excel, and Photoshop files that had been created in Windows and all opened, even though our Mac applications were one generation behind (Microsoft Office 2000 vs. 98, and Photoshop 6.0 vs. 5.5).

At more than \$300, this is not an inexpensive solution, but it is a simple-to-use and elegant one. **C**

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Want your Mac to talk PC? Call Dave

By Alan Tiessen

If you have a mix of Mac and Windows computers at home or at work, there are a lot of advantages to being able to connect them with a network, sharing files and printers.

Dave 3.1

From: Apple Software
www.apple.com
Requires: Mac OS 8.5-9.0 or 10.1
(Suggested price: \$235, \$146 (suggested))

When PC MacLAN links Windows systems connect to an existing Mac AppleLink network, thereby Software's Dave takes the opposite tack. It gives Macs the ability to take full part in a Windows network.

As such, it doesn't require any changes to your Windows system; all software is added to the Macs. Assuming you already have a Windows network in place, a quick installation and answering a few questions in a setup wizard is all it takes to enable your Mac to join the club.

After installing, any Windows PC with

file or printer sharing enabled will show up in the Mac Chooser, just like a native-Mac AppleShare system. Double-clicking the server name lists you select a shared printer or folder, which will appear on the Apple Desktop, ready to use.

(Shared Windows systems do not appear in OS 9's Network Browser, but can be accessed from a Dave link that is installed in the Apple Menu.)

Unlike similar-standing products like Cambridge's GoodLink and Sunbay's own MacSolo, Dave gives Mac owners the option to allow their Mac to share its files and printers across the Windows network. With this option set, the Mac appears in the Windows systems' network Neighborhoods, just as if it was another Windows computer.

The new Dave 3.1 adds native OS 10.1 support—older versions do not work with OS X at all, not even in that operating system's Classic mode. OS 10.1 includes basic SMB (Samba) networking support, allowing Macs to connect to Windows networking, but that support is pretty barebones;

Continued on page 38

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NEW & NOTABLE

Annual Net traffic growth still helping
Continued from page 32

Law to dictate the capacity of their trunk lines (the high-speed communication links between network switches).

"Moon's Law is what dictates the market, and therefore the economics of scale that people chase," he said. In the short term, as traffic grows, he said, numerous carriers will be able to compete because they'll be able to profitably fill the capacity of their OC-192 line-rate data lines capable of carrying 10 Gbps. But carriers won't be able to affordably maintain them when the trend reverses, he said.

"At the end of decade, when the traffic starts slowing down, we will probably see more consolidation of these people in the marketplace."

—Newlytics

Adobe takes wraps off InDesign 2.0

Adobe Systems Inc. (www.adobe.com) has released InDesign 2.0, the latest version of its layout and design software. The new version introduces dramatic transparency effects, such as drop shadows, table creation, long document support, extensible markup language (XML) import/export support and a greatly enhanced printing interface, according to Adobe.

It also allows users to create, manage and deliver visually rich content for various publishing formats, including print, Web, eBooks, and PDA. In addition, this upgrade supports Adobe's XDP (Extensible Metadata Platform) technology, an XML-based framework for embedding, tracking and exchanging metadata.

Adobe says InDesign 2.0 is also significantly faster than the previous version, provides native support for Mac OS X and Windows XP, and tighter integration with other Adobe products, including Acrobat, Illustrator, and Photoshop.

Adobe InDesign 2.0 has an estimated street price of US\$199, and US\$99 to upgrade (until March 22, after which it goes up to US\$149). For those who like to try before buying, a 90-day free trial of InDesign 1.5.2 can be downloaded from Adobe's Web site.

—TCP Staff

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Overall Web site defacements rose in 2001, reports Mi2g

LONDON, England—The latest figures from Mi2g (www.Mi2g.org) show that Web site defacements increased around the world during 2001, despite a brief drop-off in site attacks in the weeks after Sept. 11.

The information technology security group says that, on domains accounted for almost 30 percent (6,756) of all Web site defacements (30,380), during the year.

The next most frequently defaced site domain names were China's .cn and Taiwan's .tw, which together accounted for 2,653 Web site defacements, or almost nine percent of the global total.

Mi2g's report adds that .gov domains experienced a 37 percent increase in Web site defacements—from 181 to 248—during the year, while .mil domains saw a 128 percent increase in defacements during the same period.

Similar increases were seen in the .com domain name groups during 2001—up

220 percent to 413 defacements during the year—which Mi2g says is probably due to political attacks on Israeli sites.

D.K. Matari said the reason for the rising numbers of defaced Web sites is that people now take to the Internet, rather than the streets, to lodge their protests.

In India and Pakistan, the numbers of site defacements increased by even higher percentages—India's .in domain defacements rose by 205 percent to include 250 sites, while Pakistan's .pk domain defacements increased 380 percent to 82 during the year.

Two were seen the increase in site defacements on sites under the .gov.uk top-level domain, where Mi2g saw a 318

percent increase—from nine in 2000 to 43 in 2001.

The upward trend was reversed briefly after Sept. 11, the consultancy reported last week. Mi2g said Jan. 3 that 815 Web site defacements occurred during September, down from the year's monthly high of 1,853 in May. However, defacements soared to 2,706 in October, fell back to 1,632 in November and rose again to 3,038 during December.

Mi2g says intellectual copyright, disgruntled employees, geotips—including ideological differences—and criminal activities were the main reasons cited for the Web site attacks.

D.K. Matari, Mi2g's chairman, said the reason for the rising numbers of defaced Web sites is that people now take to the Internet, rather than the streets, to lodge their protests.

"What we are seeing is that the sovereignty of the state is being challenged by the sovereignty of the individual," he

said, adding that Web users increasingly use anonymous Internet servers to hide behind to stage their site attacks.

Based on his firm's research, Matari says the Web site defacement problem getting worse during the next year. Global Web site defacements, he said, are indicative of the general conflicts prevalent in the world at large.

"2002 may be a year in which political, religious motivated attacks, both physical and electronic, could complement strikes from disgruntled employees and organized crime," he said.

Mi2g says it is been compiling its records since 1996, using a combination of consultants scanning the Web and talking with IT security professionals about security losses.

The firm also administers its own site defacement database, which is updated with information from continuously from the Web.

—Newsticker



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Developers will be 3G saviours, report claims

MALMO, Sweden—The future of the entire third-generation (3G) wireless industry depends on the success of a small number of application developers, a new report claims.

The study, *The Savior of 3G*, from Sweden's Mobile Netbox (mobilenetbox.se) and published by telecom consultancy BIVIS (bivis.se), says there are currently no "killer applications" for 3G, mainly because very few carriers have developed mainstream non-voice services on their existing second-generation (2G) cellular networks.

"The networks now have to develop and market non-voice services on their upcoming 3G services, despite the fact that most of their existing 3G services are used for voice and text messaging applications," according to Bost Persson, a BIVIS consultant.

Persson said he fully expects "killer applications" to be developed for 3G services, but the process will take time.

"The potential 3G killer application area that seems to be developing is mobile gaming, although the potential user base for engaging only accounts for around 10 percent of users, mainly younger users," he said.

Persson added that the report was compiled based on research and interviews with more than 3,000 companies that are developing 3G network applications.

"Some of these developers are time-tested big-dog outfits, while others are major international companies," Persson said. "The report's conclusion is that only a handful of these developers will come up with the killer applications that will be the main revenue earners for 3G."

Based on eight key criteria, including financing, customer contracts, geographic focus and sales, the report says the most promising 3G developer companies are Cybird (Japan), Optix, Bridges (UK), Dinsay (US), Infospace (US), Touch (UK), Ludigames (France), Micon (US) and Zed (Finland).

—Renebyter

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with a UPS...
your computers
will thank you

By Sean Connolly

(Setting: It is a dark and stormy night. The camera zooms in on a house, and focuses on the only lit window. Zooming in through the window, we see a home office. A person sits in front of a PC, typing away. It is late, and there is a mass of paperwork on and around the desk. A cup of cold coffee sits beside the keyboard. Our Protagonist grabs the cup, chugs back a mouthful, then puts the cup down with a look of despair.)

Our Protagonist: Bleah! This is the last



time I stay up this late to work on my accounts. It's been 12 hours of finger-breaking typing, but at least I'm nearly done.

(A flash of lightning outside, followed by a clap of thunder.)

Our Protagonist: Glad I'm inside and not coming home from work!

(Another flash of lightning, as which point all the lights go out. The PC powers down, too, at which point Our Protagonist realizes that, uh... none of his work has been saved for a few hours.)

Our Protagonist: Nooooooooooooooooo!

Continued on page 46

Pentium 4 notebooks hit the ground running

Eurocom, Impaq bridge CPU generations

By Sean Connolly

Though Intel's mobile Pentium 4 isn't scheduled to be officially released until March, that hasn't stopped a pair of Canadian companies from releasing Pentium 4-based notebooks. The catch: both notebooks use of a desktop Pentium 4 processor.

Both Eurocom (eurocom.ca) and

Impaq (www.impaq.com) have announced new notebooks with Pentium 4 processors with speeds of up to 2.2 GHz, and both sent us units to review. These new notebooks use a standard 478-pin desktop Pentium 4 and special cooling to prevent the notebooks from overheating (if you look at the upper left of the keyboard, you can see one of the vents around the heatsink,



allowing airflow to dissipate the heat very efficiently). The notebooks use an Intel 445-chipset motherboard, and team it up with SDRAM.

8770 Monte Carlo

From Eurocom Corp.
Tel: 877-380-4266 www.eurocom.ca
Price: \$1,099 (tested)

Continued on page 46

Half-point tweak for pcAnywhere

Venerable remote control
application improves security,
customization, file transfer

By Jeff Evans

The latest version of pcAnywhere, arguably the most popular remote control software program for Windows PCs, boasts a large number of new or improved features. As indicated by the "5" increment of this version, pcAnywhere 10.5 is not a complete reworking of the application, but rather a large addition upgrade, with an emphasis on enhanced security features.

pcAnywhere 10.5
From Symantec Corp.
www.symantec.com
Street price: approx.
\$225



Minimum system requirements (host): Windows 95/NT/ME/2000, 16MB, 64 MB RAM

Pros: Very powerful, flexible remote control software. Allows administrator to control a PC or a server from a distance. Excellent for troubleshooting and supporting computers remotely. Version 10.5 is newer, more secure, and faster in some operations.

Cons: Somewhat complex for a novice, well suited to companies with IT specialists, or small businesses with at least one computer-adept person to take on the task of installing this application.

Among the new features are mandatory password protection, which is designed to consistently prevent unauthorized users from accessing a pcAnywhere host computer (the appli-

Continued on page 43

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Value-added volts

Continued from page 46

cover blackouts and surges/volts, and sometimes handle surges or compensate for line noise.

One step up is the line-interactive UPS. These models feature a bridge between the utility power and the battery, and allow the battery to provide extra kick to the utility power when the utility is running below the standard voltage, or to take the excess when utility power is running too high (this is often referred to as "buck and boost"). Line-interactive models handle the same power events as a standby unit, but also regulate surges and dips. They provide the best compromise between price and performance.

Even better is the online UPS, which routes all power through the battery, providing the cleanest and most consistent electrical signal possible. Since your computer equipment is always running off the battery, there are no gaps or power events to worry about, as they're handled before they get to the battery. The downside is cost: full online tech-

nology is more expensive, and most online UPS models cost too much to make them attractive for the home office, unless uptime is exceptionally important or the power in your area is extremely bad.

What the ratings mean

UPS equipment is always rated with two numbers: VA for volt-amps and W for watts. VA is a measure of how long the unit will power a given set of equipment, and W is a measure of how big a load the unit will support. Higher numbers mean more capacity in both cases.

The testing

We tested UPS units by connecting a PC and monitor, turning them on, and then cutting the power to see how long the UPS units would run. Our test setup consisted of a 17-inch Viewsonic PF-775 CRT monitor and a PC containing a 1.4 GHz AMD Athlon processor, a Gigabyte GA-70X motherboard, 256 MB DDR SDRAM, a Leadtek Winfast GeForce3 graphics card, onboard AC97 audio, DVD-ROM drive, and a network card.

We considered this system as fairly power

hungry, and if you use a more modest system (or a more energy efficient system for that matter), your runtime should improve substantially.

This month we've picked a few stand-by and line-interactive UPS units, to keep the prices reasonably low. We have models with a range of VA ratings to show you the different levels of performance you can expect.

APC Back-UPS CS 150

From American Power Conversion Corp.

www.apc.com

Estimated price: \$109 (converted from US\$69)

Low battery warning (audible): 4-40

Real power depletion: 720

This 300VA (210W) model is a fairly basic and compact box with six outlets on the back, half of which feature battery backup. Two outlets are slightly separated from the others to accommodate the transformer bricks used by DC-powered electronic equipment, and Video cable ties are included to keep everything tidy.

The inclusion of protection for other phone or Ethernet jacks is nice, though

Continued on page 50

Test Lab

Dirty power

- **Surge:** Short and small increase in voltage. Can occur when nearby equipment—like a refrigerator—switches off.
- **Spike:** Very short period of extreme over-voltage—typically between 0.5 and 180 microseconds. Can be caused by a lightning strike.
- **Swells:** An extended period of slight over-voltage.
- **Sag:** Short and small decrease in voltage. Can be caused when the fridge starts back up again.
- **Brownout:** An extended period of slight under-voltage.
- **Dip:** Very short under-voltage condition; the inverse of a spike.
- **Noise:** Irregular frequency shifts in the power waveform; can be introduced by other equipment on same line. (Includes harmonic distortion.)



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UPS specifications and test results

	APC Back-UPS CS 500	APC Back-UPS Office 500	APC Back-UPS Pro 500 200	Bellon Regulator Pro Gold USB 4000A	Powerware 3110 4000A	Powerware 5050 3000A	Staple Internet Office UPS 4000A	Tripp Lite SmartPro 500 USB
Power rating (VA / W)	500 / 250	500 / 250	500 / 400	400 / 200	400 / 400	500 / 500	500 / 500	500 / 300
Topology	standby	standby	line-interactive	line-interactive	standby	line-interactive	standby	line-interactive
Total outlets	4	6	7	8	6	4	6	6
Outlets w/ battery backup	3	3	4	4	4	4	3	3
Outlets w/ power conditioning only	1	3	3	4	2	0	3	3
Data line protection	yes	yes	yes	yes	yes	yes	yes	yes
Standard telephone connector	yes	yes	yes	yes	yes	yes	yes	yes
Standard Ethernet connector	yes	yes	yes	yes	yes	yes	yes	yes
Modem cable connector	yes	yes	yes	yes	yes	yes	yes	yes
Connection to PC	USB	USB	USB	USB	serial	serial	serial	USB
Shutdown software included?	yes	yes	yes	yes	no	yes	no (free download)	no (free download)
Compatible with Windows 9x	9x/Me	9x/Me	9x/Me	9x/9x/Me	9x/9x/Me	9x/9x/Me	9x/9x	9x/9x
Compatible with Windows NT	2000/SP	2000/SP	2000/SP	NT/2000	NT/2000/SP	NT/2000/SP	NT/2000	NT/2000
Compatible with Mac OS	9.0.4+	9.0.4+	9.0.4+	5.0.4+	no	no	7.4R 4/5.0+	7.4R/4/5.0+
Compatible with other OSes?				Network/ Unix/Linux	OS/2/Network/ Solaris/Unix/OS/2	OS/2/Network/ Solaris/Unix/OS/2	Novell/Unix/ Solaris/Unix	Novell/Unix/ Solaris/Unix
Time to full battery warning* (minutes)	4:40	5:30	6:25	6:40	10:10	4:50	5:45	7:25
Time to full power depletion* (minutes)	7:20	7:45	11:45	11:20	10:00	5:50	5:20	9:00
Dimensions (WxDxH) (in)	5.625x5.0x15	5.625x5.0x15	12.5x6.25x15	28.75x6.25x15	15.75x7.25x15	15.75x7.25x15	15.75x7.25x15	12.75x6.25x15
Weight (lb)	8.4	4.7	7.0	8.0	4.8	18	3.5	6.8
UPS warranty	2 years	7 years	2 years	lifetime	2 years (1 yr prorated)	2 years (10 years prorated)	2 years	7 years
Connected equipment warranty	US\$15,000	US\$15,000	US\$15,000	unlimited	US\$15,000	US\$15,000	US\$15,000	US\$15,000
Estimated price**	\$190	\$190	\$200	\$230	\$190	\$240	\$190	\$140

Notes: * See article for test bench setup. ** Prices are estimates calculated from manufacturer's suggested retail prices in US dollars.



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Value-added units
Continued from page 40

the jack on the back of the UPS for the

APC Back-UPS Office 500

From American Power Conversion Corp.
www.apc.com
Estimated price: \$149 (converted from US\$109)
Line battery warning: 5 min
Total power depletion: 7.4 hrs



Appearing like an oversized power bar, the 500VA (320W) Back-UPS Office may be the best bet for the home user who doesn't like the bulky appearance or bulk of a standard UPS. This one has the same VA rating as many of the more traditional value-priced full-line UPSes, but its shape and size allows it to be placed behind the desk more easily. It has six outlets as a rule, half of which are backed up by the battery. One outlet at each end is separated from the others to accommodate transformer blocks. The wall plug is angled and the cable shorting is angled at right angles to the plug itself to avoid interference with other outlets.

Continued on page 52



USB cable is the same type of jack, which could be a bit confusing. The PowerChute Personal software is compatible with Windows 9x, Me, 2000, XP, and Mac OS 9 or later. Overall, the lower watt-amp and watt ratings make this a good choice for a modest workstation.

Test Lab

Extending your UPS uptime

The equipment you plug into your UPS will affect its runtime. For our runtime tests, we purposely picked a system that would suck back power. Obviously your results will be better if your system is more energy-efficient.

For example, switching to a flat-panel monitor will reduce the load on your UPS. Just by switching from a 17-inch CRT to a 15-inch flat panel with similar screen size as our test machine, we improved the runtime of one UPS from 7:35 (measured) to 12:35—nearly doubling the runtime, but almost.

As far as the computer itself goes, the more efficient the system, the longer you can expect the UPS to keep it running. By switching from our test system to a less power-hungry PC with 2 GHz Pentium 4 system and flat-panel monitor, we increased our runtime with one of the 500VA UPSes from 9:05 to 10:45. Even better, we managed to get our 350VA UPS all the way up to 35:00 by going down to a 600 MHz Celeron system.

Obviously we're not suggesting you downgrade your system to a Celeron, but keep in mind that some systems consume more power than others, and even at the high end of the spectrum. For example, both the new Northbridge Pentium 4 processors and the new Athlon XP processors are an improvement over their predecessors.

Choosing a system with lower power requirements won't just help your UPS runtime; it also will lower your electricity bill.

There is also a simple step you can take to improve your UPS performance without buying new equipment: simply remove any non-essential devices from the outlets that we loaded up by the battery. This includes modems, speakers, USB hubs etc., which can generally all be safely plugged into the surge-only outlets. Be the other hand, if your external hard drive or zip drive is essential, you should plug it into a battery-backed outlet.

—Sean Connelors



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Continued from page 50

while maintaining a low profile against the wall.

One of the most things about this UPS is that it gives you a choice for data protection, with a set of co-axial connectors in addition to the usual phone/Ethernet combo jack. The PowerChute Personal software is even compatible with Windows 9x, Me, 2000, XR and Mac OS 9 or later.

APC Back-UPS Pro USB 700

From America's Power Conversion Corp.
www.apc.com

Estimated price: \$280 (converted from US\$280)

Low battery warning: 5-40

Low power depletion: 11-55

The bigger sibling of the 500VA model introduced over a year ago, the 700VA (410W) model shares all of the earlier unit's strengths and quirks. The slanted outlet panel on the top of the UPS not only makes it a lot more aesthetically unimposing, it also allows you to restrain the UPS from front-to-back for easier access to the outlets without obscuring



the status lights. The battery backup at server of the seven outlets. Video cable ties are included for organizing the power cords plugged into the UPS. The wall plug is L-shaped, angled down, which means you'll need to plug it into the lower wall socket to avoid covering the other outlets.

Oddly, the alarm continued to sound even after the UPS had ceased providing power to the connected equipment, but despite that, it provided a pretty good

amount of electricity. The PowerChute Personal software is compatible with Windows 9x, Me, 2000, XR and Mac OS 9 or later.

Bellin Regulator Pro Gold USB 650VA

From Bellin Corporation

www.bellin.com

Estimated price: \$269 (converted from US\$269)

Low battery warning: 5-40

Low power depletion: 11-20



Bellin's 650VA (390W) Regulator Pro Gold USB model is one of the more stylish UPSes we've seen, with a wedge-shape featuring a slanted outlet panel

similar to APC's Back UPS Pro USB line, but with a few more design embellishments. More important than any style considerations though, is that it has eight outlets, half of which feature battery backup, giving the Regulator the edge over the rest of this month's units. It also comes with a cable management attachment for the back.

The warranty for the unit is one of the best available for a workstation-oriented UPS: a lifetime warranty for the hardware itself, unlimited warranty for equipment connected to it that might be damaged by surge or power failure, plus Bellin will cover the costs of data recovery if UPS failure damages your hard drive.

Powerware 1100 600VA

From Intellect Power Systems

www.powerware.com

Estimated price: \$460 (converted from US\$470)

Low battery warning: 11-30

Low power depletion: 11-30

This power bar-style UPS packs in a lot of power, at 600VA (400W). The outlet configuration on this version of the

Continued on page 54



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- Core® WordPerfect® Office 2002
- 17" Monitor

1.50GHz

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All for just

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(approx. \$2,310 when priced individually)

Powell & MacKenzie Design, a Canadian Internet design firm, has cut the time it spends on IT duties by 90%, thanks to Small Business Server 2000. "Everything is more simple and elegant," says Senior Business Manager Steven Hendry. "In the past, we were forced to build a lot of the network functionality ourselves. But now with Small Business Server, it's all done in the product, plus there's no paid license that needs to be done. By licensing less on network management, I can pay more reliably to the business. And that's a huge benefit to my company and our customers."

Microsoft

keep in mind in order to grow.

Having taken his business from a single-person operation he ran from his home to a shop employing four people, Friesen found that leveraging his contacts was a way to not only promote new business but to tap into skills and services that he could use later on. As an example, Friesen did work for a design firm that he was later able to call on when working with other clients who needed design work.

Friesen also suggests that any business owner should become comfortable with technology. Account management, time management and contact management software are essential business tools that can help you better manage the company as it grows.

Likewise, hardware projects, such as setting up a local area network, are not that daunting using basic networking links available in office supply stores. They do require some learning, but the payoffs—lower IT support costs—can be considerable.

In the end, growing your business requires patience but knowing that there are services and support mechanisms out there should make things a little easier. □

File server in a box

Continued from page 38

From Meta Software Technologies

www.metafiletech.com

Estimated prices

Model	Capacity	Interface	Price
FS002	80 GB	Parallel, RAID 0/1	\$6,800
FS003	160 GB	Parallel, RAID 0/1	\$8,800
FS005	320 GB	Parallel, RAID 0/1	\$10,800
FS007	320 GB	Parallel, RAID 0/1	\$10,800
FS008	320 GB	Parallel, RAID 0/1	\$10,800
FS009	320 GB	Parallel, RAID 0/1	\$10,800
FS010	320 GB	Parallel, RAID 0/1	\$10,800
FS011	320 GB	Parallel, RAID 0/1	\$10,800
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FS097	320 GB	Parallel, RAID 0/1	\$10,800
FS098	320 GB	Parallel, RAID 0/1	\$10,800
FS099	320 GB	Parallel, RAID 0/1	\$10,800
FS100	320 GB	Parallel, RAID 0/1	\$10,800

The desktop version of the server is roughly cube-shaped—a silver box with a black finish. Its front panel has an LCD screen that displays the status of the server and acts as the interface for setup and configuration if you don't want to

connect it to a monitor. The rear panel has a number of connectors that would be typical on a PC: VGA, keyboard and mouse, two USB ports, a 16000 Ethernet port, audio input/output, a serial port, and a printer port. There are also three slots on the back for expansion modules (like PCI) and on PCs.

The MetaServer is available in several desktop versions. All come with a pair of hard drives inside the case, for a total capacity of 80, 160, or 320 GB. The top of the box has a black panel that lifts

to reveal a CD-ROM drive and built-in FireWire tape drive. The included CD-ROM drive has maximum write, rewrite, and read speeds of 48X/33X, and the tape drive can handle up to 66 GB of data.

The processor in our review unit was an 667 MHz Intel Celeron and it shipped with 128 MB RAM—both of these can be upgraded (and are likely to change when new models of the MetaServer are released).

Continued on page 62

You might want to hold off on the turnaround 64...

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Raging against the machine

Workers downloading frustrations with computers on IT staffers

By Sharon Oshrook

Party the poor IT workers. They are, in the words of IT expert Michael Frome, the village idiots of the corporate world.

"You need a blame board. You need somebody to kick," says Evans, manager of academic computing at Toronto's Centennial College.

The college is at the forefront of technology training in Canada and Evans teaches teachers how to use technology in the classroom. As such, he has his finger on the pulse of this troubling trend.

"When there are problems—the system goes down during an exam, or the printer isn't working when a student is printing an essay—front line staff will be addressed in a pretty early way. I don't think this is unique to Centennial," he says.

Certainly that's the finding of extensive research out of the United Kingdom, where much of the work on IT rage is being conducted.

A recent Compaq study shows that three quarters of respondents say their colleagues who suffer daily problems with their PCs cover at their moments out of frustration.

Verbally abusing the PC is not the only

response to IT stress; a quarter of respondents under 25 years of age have seen peers kicking their computers. A similar number of respondents said they had considered causing damage to their PC by deliberately pulling out its plug.

79 percent of those surveyed said computer failure was more stressful than lining up in a bank or bar, and 12 percent said they found computer failure more stressful than being left by a partner.

It should come as no surprise then to learn that the same study shows more than one in eight workers have seen their colleagues bully the IT department when things go wrong.

Rene Clements has been at the receiving end of this kind of behaviour more than once.

Clements was responsible for network administration and tech support at a Toronto social service agency before quitting in frustration last year. She con-

tinues to be so bitter about the experience that she dedicates to name the organization out of concern that her words might wound former colleagues still with the agency.

One of her responsibilities was to update a monthly listing. Clements remembers the day her manager called her into her office to berate her for not having updated the list.

"She was very upset. I and click on the refresh button and I think you'll see the updated listings," says Clements.

But the manager insisted that if she didn't know how to refresh the listing, the organization's clients certainly would not be able to figure it out.

In response, Clements leaned over and gruffly pointed to the line at the top of the page where instructions on refreshing the listing were written in large, bold letters.

The manager was not mollified.

"I thought, I'm just going to read and back out of your office. I can't control the Internet, but I really got chewed out," says Clements.

No one needs to tell Clements that Compaq's study found one out of 10 respondents would not quit the IT manager's job; and that only seven percent said their IT manager was given preferential treatment, despite the extremely stressful nature of the job.

The problem, of course, is that so many of us find technology stressful.

The authors of a recent study commissioned by U.K.-based KCL put it best when they called their report IT Day from Hell.

KCL, a Fujitsu-owned e-business service company, found computer glitches cause enormous amounts of stress.

Continued on page 64

File server in a bin
Continued from page 62



to opt for one of the rack-mounted versions instead. These are essentially the same as the desktop units, and include the CD ROM drive and integrated tape drive. The ES240R model ships with 240 GB hard disk space and RAID 0, as well as a 300-copy PerfectCOPY Client license if you really want a lot of storage space, you can opt for the 960 GB ES400R, which comes with RAID 0/1/5 and an unlimited PerfectCOPY Client license.

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computer out the window, there'll be a meeting. If someone simply erases using the computer, it can go on and on," says Scally.

The overriding concern is that IT areas count at all cost.

According to the Compuq study, essentially a quarter of respondents said their work was interrupted daily due to computer crashes and other IT faults. Two in five who suffer daily breakdowns claim this delay has caused them to miss deadlines, while one in 10 have felt like bad mouthing their company to clients as well as friends because of frustration with the ineptness of their IT.

This is despite the fact that one in six admit that their PC problems are normally due to their own lack of understanding.

So what's a conscientious employer to do?

In addition to providing basic technology training, managers have to learn to

manage expectations.

Gleason, now the Web Community coordinator for Women's Health Matters at Sunnybrook and Women's College Health Sciences Center in Toronto, says her current employer has the right attitude.

"If there are problems that are out of our hands, then they're out of our hands. My manager is not a geek, but I can sit down with her and explain the Nerf limitations and she accepts it," says Gleason.

Eaves would add that employees should encourage workers to expect the unexpected when it comes to technology.

"The principle we always use is that technology is not going to work the way you want it to. We're just not there yet. Managing people who use the technology, that's the solution," says Eaves.

He teaches his students that they must expect the technology to malfunction and that they should always have a back-

up plan. Your laptop won't run that personal PowerPoint presentation? Don't sweat it: your IT manager, instead be prepared to make your point with an overhead projector or chalkboard.

Scally recommends employer make IT/business management cross-training a priority. He says that too often, IT managers are not managers at all, but simply good IT workers who get promoted. The other side of that equation is that most business managers don't understand IT and don't take it into account when planning their company's progress. The solution is to bring the two areas of expertise together.

And last, and perhaps most importantly, call IT rage by its proper name—bad behavior.

"You call it IT rage, which externalizes it. But these are not new behaviors because of new technology," says Eaves.

In the end, IT rage is simply people behaving badly. □

Palm gives developers Bluetooth tools

SANRA, CALIF.—Palm has starting shipping a set of tools to software developers as the technology industry begins to get serious about Bluetooth, a standard for short-distance communication by wireless devices.

Palm, the top handheld computer maker, released the Bluetooth Software Developer Kit for its Palm OS platform in early January. The tools will encourage software developers to create Bluetooth-compliant applications for Palm's handheld devices.

The company envisions the applications will enable Palm devices to communicate—without the need for wires—with cell phones, PDAs, printers and local networks.

Palm also said it is collaborating with hardware manufacturers like NetScout Systems and TOR Systems to provide compatible hardware development kits.

TOR Systems recently launched a range of Bluetooth devices, including an "Instant Bluetooth" kit for the Nokia 4230 GSM handset, one of the most widely used mobile phones on the market.

While Bluetooth has not taken off as quickly as was first expected, major device manufacturers are predicting a flood of Bluetooth devices this year.

Recently, Swedish wireless giant Ericsson said it plans to sell between five million and six million Bluetooth devices during 2002.

Details of Palm's Bluetooth Software Developer can be found at www.palm.com.

More information about Bluetooth can be found at www.bluetooth.com.

—Anastayler

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Computer PAPER

ON THE EDGE: COMING-SOON PRODUCTS

Extracting meaning from numbers



What goes into a worksheet is data, what comes out is information. This month, we look at ways to organize and display information in Excel.

Turning data into information requires that it be displayed in a way that is meaningful. For example, data relating to a business's monthly sales becomes information when organized in month order, allowing you to see trends. Information on the raw numbers of product sales becomes meaningful when ordered numerically, allowing you to see best sellers and poor sellers.

We'll look at some features of Excel that you can use to order and present the data in your worksheets so users can find what they're most interested in. The tools we'll investigate include sorting and filtering options that you can use to rearrange data, as well as some handy formulas for extracting data from a worksheet.

The steps outlined in this column are based on using Excel XP, however most Excel tools have been around for some time, so the instructions should work just fine in earlier versions.

Sorting Excel data

Sorting data allows you to change its

order so it's easier to read and values are easier to locate. For example, a list of sales figures sorted numerically shows the smallest figures at one end of the list and the largest at the other. You can also sort data alphabetically so, for example, it is easier to find a particular name in a list.

It is always prudent to save your data before you sort it. In days past, it was extremely easy to sort only one column of a large table of data, thus rendering the entire table of data meaningless. Because this was also before the advent of Undo options, the resulting mess would be hard to undo unless you had saved the data first. Even with new built-in safety mechanisms in more recent versions of Excel, it still makes sense to save your work first.

A second warning before you proceed: regardless of whether you have used your work before you sort your data, be careful not to save it after you perform the sort operation until you are satisfied that you have the results you want. When you save a file, Excel's Undo list is reset and you cannot undo the changes you made prior to saving the file. So, save before you begin and check your data carefully before you save again or you could still be in trouble.

With those warnings out of the way, here's how to sort your data. Select the data you want to sort—this means you must select all the data in each row of the table, even if you only want to "sort" one

column of it. You can include the column heading or not as you like (if you choose it, you can exclude it from the sort later on in the process). You can also quickly select an entire rectangle of data by clicking a cell inside the table and pressing Control + Shift + * (this process will include the heading row).

Now choose Data, Sort and, from the Sort By drop-down list, choose the column letter that contains the data you want to sort. Choose the Ascending or Descending option and click OK. Ascending will sort with the smallest value (or earliest in the case of dates) at the top and the larger (or latest in the case of dates) at the bottom. Descending order reverses this. If there are blank cells in a column they'll be sorted last, regardless of the ordering you've selected. Depending on whether the selected area includes the heading row, choose the correct option in the dialogue before clicking OK to sort the data.

In some cases, you may want to sort data based on the contents of more than one column. For example, in the situation where you have a list of first names in one column, last names in a second column, and you want to present the list in alphabetical order, choose the column containing the last name as the Sort By column and the column containing the first name as the Then By column. Set both options to Ascending. As a result, the people will appear in last name order and, where there are two people with the

same last name, they'll appear in order by first name.

Using a list to sort

What do you do if you want to sort items in an order you specify? For example, you may have a number of people working in your company and you want to sort your data so Jones Smith (your boss) is first, you're second (Jane Cairns), followed by your pet Simon Brand, and finally Meredith Mason, whom you supervise.

You can sort in this order if you first create the order as an Excel list. Choose Tools, Options, Custom Lists, then type your list of names (one per line) in the last Entries box (press Enter after typing each name). Click Add to include the list, then Close to exit. You can now sort data in this order if you choose the column containing the names as the column to sort. Note that the names in this column must appear in the same format you've entered them into your list. In the Sort dialogue, choose Options, and, from the First Key Sort Order drop-down list, choose the list you've just created and click OK. You can then sort the data by clicking OK again. Entries in the data table that don't match an item in your list (the name doesn't appear in your list or it's spelled differently, for example), will appear at the end of the list in alphabetical order.

There is one final sort option of note that is handy when your data is entered

2000 COMPUTERS			
INTEL Celeron 1GHz 256MB DRAM 17" MONITOR \$899	AMD XP 1700 256MB DRAM 17" MONITOR \$1199	IBM THINKPAD 1.6GHz CPU 1GB RAM 15" MONITOR \$1799	HP PAVILION 1.6GHz CPU 1GB RAM 17" MONITOR \$1999
Best Value INTEL Celeron 1GHz 256MB DRAM 17" MONITOR \$899	Super Fast AMD XP 1700 256MB DRAM 17" MONITOR \$1199	IBM THINKPAD 1.6GHz CPU 1GB RAM 15" MONITOR \$1799	HP PAVILION 1.6GHz CPU 1GB RAM 17" MONITOR \$1999
Best Buy INTEL Celeron 1GHz 256MB DRAM 17" MONITOR \$899	21 Century AMD XP 1700 256MB DRAM 17" MONITOR \$1199	Advance IBM THINKPAD 1.6GHz CPU 1GB RAM 15" MONITOR \$1799	15" TFT LCD HP PAVILION 1.6GHz CPU 1GB RAM \$1999

Quick Tips

Continued from page 58

checkboxed. Try these at the beginning of a new line (Type then, press Enter) to add horizontal lines: three dashes (—) for a single line; three equals (=) for a double line; three hashes (#) for a triple line; three asterisks (*) for a dashed line; three tildes (~) for a wavy line; and three under-scores (___) for a heavy line.

More horizontal lines ▶ Add fancy horizontal lines to your documents using images. Choose Format, Borders and Shading and click the Horizontal line button. A dialogue will appear with images of lines you can use. Choose one and click OK to add it to your document.

Taming AutoCorrect ▶ When AutoCorrect becomes too efficient and makes corrections you don't want, create an exception instead of disabling it. Open the AutoCorrect dialogue, choose Exceptions, then click the tab relevant to the correction being made. Type the word you want to protect and click Add.

Relief for stress: a click away

NO—We all know stress is bad for us, but there are scientific explanations for stress, and proven ways to treat it yourself, including through relaxation. Whether you're a health professional or a sufferer, there will be useful information on this International Stress Management Association site, developed by a non-profit organization dedicated to making for a less stressful world.

www.istma.org/management.html

Add a Work menu ▶ Word's Work menu stores files so you can access them quickly. Right-click a toolbar, choose Customise, the Commands tab, and, from the Commands list, choose Built-in menus. From the Categories list, select Work. Drag and drop the icons onto your toolbar, and click Close. Open a file to add to the menu, choose Work, and click Add to Work Menu. You can now open the file next time by selecting it from the menu.

Click here black ▶ If you have a template into which you need to type text in specific locations, create a special Word field that allows a user to click and type exactly where the text is to go. With the cursor where the text is to appear, choose Insert then Field, from the Categories list, choose Document Automation, and from the Field Names list, choose MacroButton (in Word XP now click Field Codes). Remove any text appearing after the word MacroButton and type {ClickMe} [Click here and type...]. Without the quote marks and replacing the prompt with your custom wording. Click OK and your click here black will appear.

Symbols on the toolbar ▶ Add toolbar buttons to make commonly used accented characters more accessible. Choose View, Toolbars, Customise, the Commands tab, and from the Categories list, choose All Commands. From the Commands list, choose Symbol, and drag it to the toolbar. When the Symbol dialogue appears, choose normal text from its font list, click the character you want to use, and click OK. Rename the button by right-clicking it and alter the text in the Name area.

—Heidi Bradley

PC security holes doubled in 2001, claims CERT

WASHINGTON, D.C.—Hackers and system administrators all agree: 2001 was the worst in 2001, a year that brought a 100 per cent increase in computer security incidents and vulnerabilities, according to statistics published in mid-January.

More than 52,800 "incidents, including Web site attacks, malicious viruses and network intrusions, were reported in 2001, according to the Computer Emergency Response Team (CERT), the U.S. federally funded computer security clearinghouse at Pittsburgh's Carnegie Mellon University. The numbers are up from 21,756 in 2000, CERT indicates.

keeping records.

CERT counts all reports related to any one particular virus, for example, as a single "incident," a factor that CERT says causes the number of incidents reported to appear much smaller in scope than they actually are.

The unprecedented increase in attacks last year tracked a nearly identical upswing in the number of software and computer equipment security vulnerabilities reported in 2001.

CERT catalogued approximately 2,433 vulnerabilities last year, compared to just 1,093 in 2000—more than half of the 5,013 total vulnerabilities reported to CERT since 1995.

While a doubling in incidents and vulnerabilities is alarming, X Force director Dirk Rowland said the CERT numbers probably reflect between one percent and three percent of the total network security problems experienced by companies of all sizes last year.

It's one of the reasons the research and development division of Atlanta-based Internet Security Systems.

"Most organizations do not know they're compromised and definitely don't report to CERT," Rowland said.

Rowland said ISS tracked between seven and eight new vulnerabilities each day in 2001, and roughly one new virus in vari-

To put the figures into perspective, incidents reported last year accounted for more than half of all attacks reported since 1988, the first year CERT began keeping records.

To put the figures into perspective, incidents reported last year accounted for more than half of all attacks reported since 1988, the first year CERT began

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ant, every other day.

While he wouldn't quibble with CERT's basic numbers, Rowland attributed much of the increased vulnerabilities to a growing cadre of notoriety-seeking individual hackers and security researchers who post their findings in public forums.

That trend has helped to broaden the definition of vulnerabilities, Rowland said.

"Whereas four years ago, some technique that could be used to crash an obscure server would just be considered a bug and fixed, [it] is now classified as a potential denial-of-service vulnerability," he said. "So within that 250 percent increase in vulnerabilities, more of that aggregate content is denial-of-service related, not necessarily an exploit that leads to serious system compromise."

Chad Dougherty, an Internet security analyst at CERT, said he agreed that awareness of what constitutes a "vulnerability" is increasing, but said heightened awareness comes from a greater understanding of how security vulnerabilities and exploits can be used in tandem.

"The reason why awareness has increased is that people are starting to understand that denial-of-service attacks can be used to leverage other attacks that might at some point provide privileged access," Dougherty said.

The CERT figures appear to show that companies are getting better about report on both attacks and potential security holes in their products.

CERT published 361 security notices last year, compared to only 57 in 2000.

But just as most companies don't know, or don't care to report security breaches, they often are not motivated to do so until prodded by a third party, Rowland said.

"Most vendors report vulnerabilities only because someone notified them and prompted to report on it themselves," he said.

A copy of the CERT report can be found online at www.cert.org/whitepapers.html.

—Rowland

Canadian online shopping in December exceeded estimates

TORONTO—Canadians flocked to virtual stores in larger numbers than expected during the holiday shopping season, according to findings from a new study.

The study by market research company Ipsos-Reid (www.ipsos-reid.com), said 3.6 million Canadian Internet users—defined as adults Canadians who go online at least one hour per week—bought something on the Web during the 2001 December holiday season.

"The customers were quite happy this year... The retailers did their homework."

The shopping rush exceeded Ipsos-Reid's prediction of 2.9 million Canadian online shoppers. Those shoppers also spent more online than last year, the firm said.

On average, Canadian online shoppers spent \$124, for a total of \$1.16 billion.

In the 2000 holiday shopping season, Canadians spent a total of \$660 million online. As of last fall, Ipsos-Reid's projected total for 2001 was \$860 million.

Steve Moscov, senior vice-president of technology research at Ipsos-Reid, said the successful online holiday shopping season was a "pleasing surprise."

"Everybody's projections for online holiday spending were low," said Moscov. "Three years ago, the projections were much higher, but last year, after the crash, projections were lowered."

"Does it mean we are back to where we were in 1999? No, but it is a nice lift," he added.

According to Moscov, one of the most important

aspects of the holiday shopping season was an improvement in customer satisfaction with online purchases.

The study found 92 percent of those who purchased online during the holiday season said they are likely to do so again next year. In addition, 35 percent of "repeat buyers" said their Web purchasing experience was better than last year, while only four percent said it was worse.

"In 2000, there was a huge increase in sales volume from the year before, but people were unhappy," said Moscov. "There was huge pressure on retailers to improve their checkout performance and their on-line delivery."

In 2001, he said, the top 35 to 40 retailers, "the ones who care," have worked out their issues.

"The customers were quite happy this year. Their satisfaction ratings are up because improvements were made. The retailers did their homework."

One finding that was unchanged from last year was the most-purchased items categories. Ipsos-Reid said 37 percent of shoppers bought books, followed by CDs, tapes or videos (27 percent), clothing (23 percent), toys or games (22 percent), and computer software (15 percent).

"Some categories are suitable for online purchases, and others are not," Moscov observed. "A book is a book, whether you buy it at Amazon.com or in a store."

"Every year, studies say other categories will increase in popularity, but we see the same categories on top over and over," he added.

The study was based on responses from 1,000 Web users from Ipsos-Reid's Canadian Internet Panel. The firm said the results were cross-checked against a telephone survey of 1,000 Canadian adults.

—Barry

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Some willing to live without the Internet, study finds

BOSTON, Mass.—The Internet has come a long way in a short time, but even the Web's burgeoning popularity has limits, according to a new study of U.S. Internet users by the Yankee Group (www.yankee-group.com).

The research and consulting firm said

seven percent of Internet users who have PCs in their homes choose not to have Web access at home. Some 66 percent of U.S. households have PCs, according to Yankee Group, which translates to 49.7 million PC households out of 906.5 million households in the U.S.

It remains why very by household income, but two of the most commonly cited factors are expense and the availability of Internet access at work or school.

For households with PCs that have incomes of less than \$35,000 per year, 72 percent of those surveyed said they did not have Web access at home because the service is "too expensive."

Having access at work or school was in a distant second place at 12 percent, followed by not wanting to tie up the phone line (10 percent), not wanting children to use the Web (six percent), and difficulty of use (four percent).

In homes with PCs that have incomes of US\$75,000 per year or greater, the most frequently cited reason for not having Web access at home was its availability at work or school, cited by 47 percent of respondents.

Expense was second at 21 percent, followed by difficulty of use (11 percent) and lack of interest in the Web (11 percent).

Lisa Melsted, an analyst with the Yankee Group, said it might seem as if Internet users would be likely to want to have the Web available in their homes, but she was not surprised that some think school or work access is adequate.

"If they use it at work, they probably are spoiled by broadband," said Melsted. "Most workplaces, other than some call centers, have a T1 line or some other high-speed access. The people who are used to broadband don't want dial-up service, and you can't get DSL or cable modem service everywhere."

Even if high-speed Internet access were to become available in all areas of the country at low cost, Melsted said the likelihood of the Internet gaining 100 percent penetration is not good.

"With any technology, there are going to be holdouts," she said.

"Even televisions and telephones are not ubiquitous. Some people choose to not have certain technology in their homes."

"It is interesting to look at the seven percent of Internet users who don't have home access and examine their reasons," she added.

Melsted said it is possible the Internet might eventually achieve 90 to 95 percent home penetration among all U.S. households, but she said such a rate is years in the future.

"The Yankee Group is projecting household penetration of 70 percent in 2005, which still leaves 30 percent," she said.

—Heatherly

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Platform News

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G4 breaks 1 GHz barrier



Just as we were going to post this month—with an interesting price/performance comparison of the new flat-panel iMac and existing G4 tower lineup—Apple sent us back to the drawing

board by unveiling its new dual 1 GHz Power Mac G4.

The new powerful towers also feature the industry's first NVIDIA GeForce graphics card, and a DVD-R/D burning SuperDrive, for USB2,999.

According to Apple, the new system can run Adobe Photoshop up to 72 percent faster (based on common operations in Photoshop 6.0) and encode DVD Video over 300 percent faster than a 2 GHz Pentium 4-based PC.

The new Power Mac G4s are also available with 353 MHz and 800 MHz PowerPC G4 processors. These slower



models start at US\$1,599.

Apple says the three standard configurations of the new G4 towers are available immediately.

Build-to-order details are at the Apple site. We'll have more on these new options next month.

Continued on page 36

AMD's Athlon XP gets faster

And provides serious competition to Intel's Northwood P4

By Sean Connolly

Advanced Micro Devices (AMD) has been a thorn in the side of Intel for quite some time, and it continues to up the stakes with the Athlon XP 2000+. As with other models in the Athlon XP line, the new processor's nomenclature is based on an overall performance metric and not on the processor's actual speed—in the case of the 2000+, that would be 1.67 GHz.



The reason AMD has opted for model names instead of frequency (megahertz and gigahertz) to differentiate the processors is that Athlon processors have continued to perform at a higher level than Pentium 4 processors rated at the same frequency when using common application-based benchmarks such as SPECint_rate_base2000 (which is our benchmark of choice).

The 2000+ uses the same architecture, manufacturing process, and form factor as previous models in the Athlon XP

Continued on page 46

The penguin on your desktop

Linux, long a respected server OS, is becoming a more viable OS for your PC

By Jacques and Nathan Sorensen

The changing circumstances of Linux for personal computers has as much to do with the geings on at Microsoft Way as it has with the continued maturation of Linux. Note that while overall PC hardware costs are falling, Microsoft has been raising its prices, such that a Windows OS has become a significant part of the total cost of a desktop PC.

For example, the hardware cost of our newly assembled 1.7 GHz Pentium desktop with 512 MB of memory, 40 GB hard drive, and 15-inch monitor was around \$700, but the total system cost, which includes a copy

of Windows XP Professional was \$1,130.

From a pure cost perspective, Linux is attractive for small businesses and multi-PC homes, where a single \$30 copy of a packaged Linux distribution supplies not only the OS, but several topflight desktop applications like Star Office (as Microsoft Office look-alike), Acrobat Reader, RealPlayer audio and video players, Netscape or Opera Web browsers, and others.

But cost is just one factor. Give up Windows altogether? You don't even have to consider that, because Linux runs comfortably in dual-boot mode with all versions of Windows.

But as we alluded to earlier, Linux has matured, its proving itself in areas it was

Continued on page 60





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Continued from page 74

More from Macworld

While we did bring you some news from MacWorld San Francisco last month, there was a lot of neat stuff we didn't get to. The show itself seemed smaller than last year, and several big name companies were absent, notably Macromedia (makers of Flash, DreamWeaver, and FireFox). It was nice to see a lot of

smaller companies in attendance though, and as usual everyone was having a blast. So, on with the show report.

Roxio introduces Toast 5.0 and Jam 5.0

In the old days, before Toast 5.0 and Jam 5.0 (between em) products, there was a companion program called Jam. Jam was geared towards the serious audio users and offered tools for creating a professional audio CD that could be used as a master for mass production. It could also

be used to create sophisticated compilation discs with cross-fading between tracks and more control over track spacing.

Invariably though, once Roxio gained control of both Toast and Jam it found it was too difficult to be constantly updating two CD burning products that had a lot of overlapping features. Jam has not been updated for several years, making it incompatible with newer CD burners, and thus almost useless.

But at Macworld, Roxio announced plans to bring Jam back with an all new version 5 due in March. Jam 5.0 will be an improvement over older versions in several key areas: it will work with 16-bit or 24 bit audio files, it will have enhanced cross-fading and multi-channel mixing support, and most importantly it will no longer include the burning code in Jam itself. Now, once you have created your CD, Jam 5.0 will create

Continued on page 78

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future: each time you download pictures from your camera they are stored with a roll number. At any time in the future you can go back and find all the pictures you took on that "roll." Very handy for when you're trying to find all the images from a certain event.

New iBook gets 14-inch screen

The least surprising announcement from Apple (www.apple.com/iBook) was the new 14-inch iBook. We're won't spend much time describing it for you because, quite honestly, it's exactly like the 12-inch model but with a bigger screen. Unfortunately, it costs more than the smaller model, it weighs an extra 450 g (1 lb.), and it's both wider and deeper. Overall, all the things that made the 12-inch iBook such a hit—small, light weight, and low price—are absent here.

One good thing on the 14-inch model is that, with the larger one comes a larger battery—adding another hour (as shown on the 14-inch iBook from five hours on the 12-inch model) to total battery life.

By far the worst aspect of the new iBook, however, is that the screen has exactly the same resolution as the 12-inch model. If the extra two inches gave you more screen real estate for pictures or windows then we'd be all for it, but both screens run at 1,024x768, so you will see the same amount of your document on either screen, only it will look larger on the 14-inch model.

In short, that extra weight and extra \$500 gets you a bit of extra battery life. Certainly for people with poor eyesight it's going to be much easier to work with, but we wish it had the option to run at a higher resolution to make use of some of that extra screen space.

Apple Skins, Cool covers for G4 towers



One of the more original products we saw at MacWorld was a series of skin pouches for G3 and G4 towers from a new company called Apple Skins (www.appleskins.com).

Continued on page 83

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G4 breaks 1 GHz barrier

Continued from page 79

Apple). It was the company's MacWorld debut, and it had about a dozen designs on show, with more to come.

Current designs range from hot rod flames, to disco art, to American flags. Apple's sleek style is still also making custom pieces for consumers that want to display their company logo, for example. The sleek currently cost US\$850 a piece and the company does ship to Canada (which is not included in the price). The pieces are easy to install and will not void your warranty.

Apple's sleek has big plans, including sleek for iMac, PowerBooks, and new desktop. This writer was really hoping for sleek for the G4 Cube, but apparently Cube sales were not enough to justify the cost.

PowerMate multipurpose input device

One of the strongest peripherals at the show really grabbed our attention: the PowerMate from Griffin Technology (www.griffin-tech.com). It looks like a volume knob on a high end receiver. It's made out of high quality machined aluminum, with a glowing blue base so it appears to float on your desk. It's an effective device, but the question is

what do you do with it?

Its most basic function is as a volume control, which is what it does out of the box. Whenever you turn the dial left or right it changes the system volume, with the base light and dimming or brightening to give you a visual cue. This is cool but not worth \$45.

In addition to tuning, you can press down on it, which triggers a mute function. Finally, you can push down and turn it, resulting in a third function that is unmapped. Now, so far it seems like a good device for those who don't already have volume controls on their keyboards but it can do much more. The included software allows you to program each of the three actions to perform different functions in each application you use. So in Internet Explorer, for example, turning the knob will scroll up or down and clicking will take you back one page. In video editing software it can be used to go through a segment from frame left to a conventional jog dial, or can be used to select in and out points for effects.

The possibilities are endless and the drivers work in both OS X and 9 so it can

be used in all your applications. It's not a must-have peripheral by any means, but after using it for several weeks and programming a number of functions, it sure does come in handy. What's especially nice, though, is Griffin's attention to detail. The PowerMate has a nice felt and looks very polished and clean. The small touches are nice too, such as when your machine is asleep the blue light on the PowerMate will pulse to match the power light on your Mac. Also, for keyboards that lack a power on button, the PowerMate can be used as a power button for your Mac, provided it's plugged into one of the USB ports on the computer and not into a hub.

We think a lot of people would find this device very useful, and Griffin has always offered great support for its products, so there's no worry about driver problems down the road. The PowerMate may eventually find its way to Canadian retailers, but right now the best way to get one is through Griffin's Web site.

John Gamm, a Mac IT specialist based in Vancouver, can be reached at jgamm@mac.com.

Education portal

Mr-Pic Teacher is a web directory for elementary school teachers and parents who want help helping help kids. In essence, this is an education portal, and it provides searchable directories of lesson plans, activities, and other online resources for preschool, elementary, and middle school students. It also offers up a "news" area, where teachers can let loose frustrations, or send off about triumphs. The EasyFind features discussion boards and email rings.

www.mrpicteacher.com/

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'Trustworthy computing' greeted with skepticism

REDMOND, Wash.—A shift in corporate strategy by Microsoft (www.microsoft.com) to emphasize security in its products could bump with consumers and heat the market for third-party security products and services, experts say. But, they add, the sea change was necessary to save Microsoft's business in the long run, especially with corporate customers.

The new emphasis on Trustworthy Computing, announced in an e-mail to Microsoft employees in mid-July by Chairman Bill Gates, calls for the company to treat security as a top priority—even ahead of developing new product features.

"When we face a choice between adding features and resolving security issues, we need to choose security," Gates wrote in the memo, which he likened to his 1985 memo that galvanized the company around emerging Internet opportunities.

Microsoft's emphasis has been regarded

al skeptically by some security professionals who see it as a marketing ploy to energize sales of products such as its new Windows XP operating system and .Net software services.

"This seems like pure public relations to me. It's only words. Let's wait and see if there will be any real change," said George Gzaninis, an independent security consultant who has discovered several flaws in Microsoft's products.

While the company's new emphasis on security may have been driven by a desire to boost sales, the shift goes deeper than public relations and will require major changes in the company, according to John Pescatore, research director for the Gartner consulting firm.

"This was driven in large part by the intense response from big corporate customers after Code Red and Nimda [viruses]," The CEOs and CFOs of Microsoft's biggest accounts said. This is killing us. We can not live this way," said Pescatore, who authored a report in

September advising corporations to move away from Microsoft's Web server software because of its security problems.

To "walk the talk" as its new corporate strategy, Microsoft must shake up the culture of its product management groups in particular, Pescatore said.

"I think developers at Microsoft are open to this change, but product management still believes they can't sell software without adding new features," said Pescatore.

For example, in the company's Windows XP product, which shipped last fall and was touted for its improvements in security, product management "jumped in dangerous features like remote administration that should have ruled all sorts of security red flags," said Pescatore.

"I believe they've changed when Microsoft starts proactively releasing advisories about vulnerabilities that they discovered themselves. Until then, it's

purely talk," said Marc Moffett, chief hacking officer for Secu Digital Security, which recently found a severe security flaw in Windows XP and also identified the vulnerability exploited by the Code Red worm.

To help meet the corporate's prioritization, Microsoft has created a centralized security group that reports high in the organization, according to Chris Wysopal, director of research and development for AtStake, a security consulting firm.

"This group is staffed with really good security people and has a significant budget. This is the first time Microsoft has a centralized security organization concerned with security during the development process," said Wysopal.

But such an organizational change may not manifest itself in actual products for at least 18 months, Gartner predicts. In the meantime, Microsoft's security emphasis may simply take the form

Continued on page 16

NORTH TORONTO (George & Bayview)
ON (Hwy 7 & Bayview)
1000 Bayview Ave. Suite 100
North York, ON M2H 3P9



Promax
Computer Systems Inc.

PICHERD LEBEL (Hwy 7 & Bayview)
1000 Bayview Ave. Suite 100
North York, ON M2H 3P9

Beginner

Model	Price
MS-1000	\$499
MS-1001	\$599
MS-1002	\$699
MS-1003	\$799
MS-1004	\$899
MS-1005	\$999

Intermediate

Model	Price
MS-2000	\$1,499
MS-2001	\$1,599
MS-2002	\$1,699
MS-2003	\$1,799
MS-2004	\$1,899
MS-2005	\$1,999

Professional

Model	Price
MS-3000	\$2,499
MS-3001	\$2,599
MS-3002	\$2,699
MS-3003	\$2,799
MS-3004	\$2,899
MS-3005	\$2,999

Special Offers

Model	Price
MS-4000	\$1,999
MS-4001	\$2,099
MS-4002	\$2,199
MS-4003	\$2,299
MS-4004	\$2,399
MS-4005	\$2,499

Hardware

Model	Price
MS-5000	\$1,499
MS-5001	\$1,599
MS-5002	\$1,699
MS-5003	\$1,799
MS-5004	\$1,899
MS-5005	\$1,999

Software

Model	Price
MS-6000	\$1,499
MS-6001	\$1,599
MS-6002	\$1,699
MS-6003	\$1,799
MS-6004	\$1,899
MS-6005	\$1,999

Special Offers

Model	Price
MS-7000	\$1,499
MS-7001	\$1,599
MS-7002	\$1,699
MS-7003	\$1,799
MS-7004	\$1,899
MS-7005	\$1,999

Hardware

Model	Price
MS-8000	\$1,499
MS-8001	\$1,599
MS-8002	\$1,699
MS-8003	\$1,799
MS-8004	\$1,899
MS-8005	\$1,999

Software

Model	Price
MS-9000	\$1,499
MS-9001	\$1,599
MS-9002	\$1,699
MS-9003	\$1,799
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MS-9005	\$1,999

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MS-2004	\$1,899
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MS-3004	\$2,899
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MS-4003	\$2,299
MS-4004	\$2,399
MS-4005	\$2,499

Hardware

Model	Price
MS-5000	\$1,499

Trustworthy computing?
Continued from page 43

of shipping software with security-threatening features turned off rather than enabled, as is the current practice.

Microsoft's new emphasis could create a period of uncertainty for the online security marketplace. On the one hand, if Microsoft is able to ship significantly more secure products, it could mean a reduced need for anti-virus software and other end-user defenses, Pesacore said.

On the other hand, Microsoft may respond to its security crisis by making it easier for third parties to develop security products that work with Windows, such as by publishing information on programming interfaces for the operating system, according to Pesacore.

Richard Perro, chief technology officer for information assurance provider ShadowLogic Corp., called on Microsoft to take that approach even further and publish the complete source code of

Windows and other products.

"Given the decades-old proprietary patchwork of many Microsoft products, the only way to truly certify that Microsoft's internationally developed products are indeed secure and trustworthy is to release the code to the security community at large for analysis," he said.

Even if Microsoft is able to clean up its act on security, there will still be plenty of work for information security profes-

sionals, according to Greg Shipley, chief technology officer for security consultancy Nishapex.

"Today's organizations face an onslaught of information security problems—problems that involve a lot more than just Microsoft-based money," said Shipley.

While it may be driven by a desire to prevent a market backlash, Microsoft's security initiative may not immediately strike a chord with consumers, Pesacore said.

"Microsoft is ahead of market demand on this. Consumers do not currently value security over features. But that is starting to change. Because of the Internet and publicity over bugs and viruses, security is starting to move up the priority list," he said.

Farms agreed that businesses are not the only customers demanding improvements in Microsoft's product security.

"The Public doesn't take kindly to security problems that impact his privacy, email, or ability to conduct personal consumer transactions online," he said.

—Newlysn

Six Degrees helps manage creativity

Burnaby, B.C.-based One Products Inc. (www.oni.com) has launched a new product for the desktop, Six Degrees, that is designed to help creative professionals manage projects.

According to One, Six Degrees is a new type of application rather than replace existing tools. It looks at the relationship between files, messages, and people and creates connections. It presents the user with all the information about a project, regardless of where the project files or messages are stored.

"Six Degrees allows the user to move quickly through the clutter of the desktop and focus on the messages, files, and people that are connected and relevant to the projects the user is working on. It filters out everything else," explains Mark Lemmons, the director of One's creative software group. "While most systems force you to store related files in a central repository, Six Degrees actively makes connections for you as you work."

Six Degrees operates cross-media and cross-platform (Mac OS X and Windows). It will be released at Macworld New York in July 2002 at an expected price of US\$249.

—ITP Staff

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Online & Connected

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WikiWikiWebs

Making the information highway a two-way street

By Sharon Ostback

At last, a truly collaborative online community. While the Web is often touted as a payoffs tool for communications, a two-way street, most Web sites communicate information in one direction only.

But a fascinating new type of site, called WikiWikiWebs, is poised to change that. It is, in a word, interactive.

WikiWikiWebs allow hundreds of people to put content on the same Web site at once. Users can both read and write—changing paragraphs, correcting spelling, and adding original material—without knowing a stich of HTML.

It's an open source collaborative server technology that enthusiasts say offers a promising tool for coordinating collaborative documents, databases, and projects.

Inspired by the Hawaiian expression for quick (with wiki, pronounced "wikkee wikkee"), Portland, Ore., programmer Ward Cunningham created this unique Web publishing system. His first Wiki page, founded in 1994, continues to operate at

www2.oic.govt.nz/WikiWebContents.

Cunningham's concept has gone on to inspire countless clones and implementations on various server platforms.

Editing by numbers

One of the most intriguing Wiki sites is something called the Wikipedia (www.wikipedia.com), created in early 2001 by a PhD named Larry Sanger. It's billed as "a collaborative project to produce a complete encyclopedia from scratch," and already has more than 20,000 articles on subjects ranging from beliefs about the nature of God to the role of the periodic table of chemical elements.

It also includes a useful section on current events that invites users to add links and work on stories as various topics become relevant to the day's news. (There is, of course, an extensive section on the war in Afghanistan, including the country's geographic history, and culture.) This section is not meant to provide breaking news, but rather to give helpful background info



revision about current events.

What makes Wikipedia unique among encyclopedias is that all articles are

Continued on page 92

Winning your own Web site

IE extensions to CSS: Part 3

By Keith Schengle-Roberts

Last month, we looked at how Microsoft's Internet Explorer (IE) includes a number of extensions to Cascading Style Sheets (CSS)—such as the ruby set of properties—designed to accommodate Asian character sets. This month, we continue to look at CSS extensions for formatting other characteristics of Asian character sets.

IME Now

If you are typing Chinese, Korean, or Japanese character into a Web-based form, chances are you're using what is known as an input method editor (IME). IMEs use sequences of base characters in order to describe an individual character. In Korean, these base characters are Hangeul syllables; phonetic Kana characters for Japanese; and various options are available to create individual Chinese characters. So, in order to write a single character in most cases, a user

Continued on page 98

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Building a MAME arcade cabinet: Part 3

Continued from page 65

game-friendly Microsoft OS. In my research, other arcade builders tend to choose an OS based on what they are already most familiar with.

Now I had to decide on a computer to host the system. Many of the games I enjoyed most were relatively old, from the "golden age" of the arcade.

They were made when computer memory was limited and expensive, so games of that era don't use much memory by today's standards (the ROMs for Space Invaders and Asteroids are under 10KB apiece). By the mid-'80s, many ROMs were up to several hundred kilobytes, and the most recent games available to MAME can be up to dozens of megabytes in size.

The general rule of thumb is the more recent the arcade game, the more processing power you'll need. If I was just planning on playing early games, a 300 MHz machine would be enough, but I wanted to be able to play games from the late '80s and '90s too, so I opted for a 600 MHz system, which I loaded up with as

much RAM as it could take.

Since most of the games require advanced 3D rendering, a standard video card is fine.

I was lucky to get a Western Digital monitor instead of a more typical TV screen, so the arcade box I had bought. This means I could use it with a standard computer video output instead of having to find a computer video card with a TV-out port.

However, the monitor is only capable of a VGA (640x480 pixel) resolution, so again, there wasn't much point in upgrading to a video accelerator card. □

Next time: Wiring components and starting to put things together.

Thanks go to co-contributors Peter Lasko and Michael Wilkins for sharing their technical knowledge. Thanks also to Colin and the people at the Toronto Coin Machine Exchange

(www.prielltechchange.com) who provided us not only with parts but were generous with their time and expertise.

SONiCblue launches the Rio Riot

SONiCblue (www.sonicblue.com) has unveiled its first hard drive-based portable music player—the Rio Riot. The Rio Riot is built around a 20 GB hard drive that can hold more



than 5,000 songs (about 400 CDs worth) of digital music, and has an integrated FM tuner.

The player integrates SONiCblue's Rio LogicTrack user interface, which includes menu system with multiple track-scanning options, viewed on a 240x160 pixel backlit display.

It runs on a rechargeable lithium ion battery that offers 30 hours of power between charges, according to SONiCblue. A 16 MB SRAM buffer helps conserve battery life by storing music in memory so the hard drive doesn't spin during playback, which also prevents skipping.

Bundled MoodLogic personal music management software scans up to 303 tag information, generates and shows one-click playlists based on music tastes, auto classifies music, and recommends songs. The Riot also comes bundled with RealJukebox and iTunes music management software, making it both PC- and Mac-compatible.

The unit runs MP3 and WMA formats, and the company says it will be upgradeable to new digital standards through software releases as they emerge.

The Rio Riot has a suggested retail price of US\$299.95.

—J.P. Staff

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Volunteers take IT overseas

By Andrew Moore-Crispin

Geek Corps (www.geekcorp.ca) is a non-profit organization intent on "bridging the digital divide" by bringing the Web and information technology to small companies in developing countries, and helping them make the most of the resources they have.

The organization was founded by its chief executive, Brian Zacherman, who rode the peak of the dot-com wealth wave of the late 1990s. Zacherman hit the jackpot when Internet search engine giant Lycos bought out Tripod, a company he helped to start, in 1998.

Currently, the fourth batch of Geek Corps' digital missionaries are in training, with plans to head to Accra, the capital of Ghana.

Jonathan Wong, a 24-year-old Toronto native, will be among them.

"I wanted to do something fun and adventurous, something I can feel proud about, and something that has some lasting power in the world," Wong said. "I'm fortunate to live in Toronto, and I want to help out."

While in the West African nation, Geek Corps' volunteers live in a dormi-



style house called Geokhale (www.geokhale.org), and work with companies in the community.

Wong, along with other Geek Corps volunteers, will be paired with a company called Skao Graphics. They plan to help the business become more effective and efficient, and to raise its profile.

Geek Corps is essentially a business and IT training service, with one fundamen-

tal difference:

"Instead of paying Geek Corps, [the companies] have to pack a project to do, something that will help the community," Wong said.

All expenses involved with getting volunteers where they are needed are paid by Geek Corps, which in turn is funded by corporate sponsors and individual donations.

Geek Corps is looking for volunteers with three years or more experience in a high-tech-related field, which can include software development, system or network administration, Web-based graphic design, business development, or sales and marketing. A desire to live overseas and work closely with people from different backgrounds, is the other prerequisite. According to its Web site, Geek Corp is finalizing new target countries for future projects, which are likely to be in Latin America and the Middle East.

Wong and his group will be leaving for their first month stay in Accra on Feb. 19. You can view their bios and diaries on the Geokhale site, once they arrive.

—Canada Computers.com

Threads in Java: Part 1



Jacques Savard
2006 TUTORIALS PART 11

IN our last tutorial ("Security and Exception Handling" in TCP [January]) we looked at one of Java's pioneering programming innovations, the try/catch/finally blocks for handling programming errors and exceptions. In this tutorial we'll look at another Java innovation: thread easy to use threads.

Threads are vital in server and Web-based systems because they are used to enable multi-processing or concurrent processing, which can make systems much faster and more responsive.

But wait a second, you say, multi-processing has long been a part of systems. So what's new here? Well, there are two key innovations. First, a great deal of multi-processing is done not by individual programs but by special scheduling and/or load-balancing programs. These

Continued on page 97

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Threads in Java: Part 1

Continued from page 87

which is what makes Java threads so attractive. Developers can add multi-processing capabilities to their Java programs with much less development effort than ever. In addition, because Java and the Java Virtual Machine (JVM) do much of the complex synchronization tasks, the code produced tends to be more reliable than the functionally equivalent, but more demanding, C++ code.

The first method of creating threads is to extend a class derived from the Thread class (public class MyThread extends Thread) [...]. However, the more popular and versatile method is to add the Runnable interface to any class you want to run as threads. In Figure 1, we show code for a sample program that does exactly this.

Here is how it works. First we add implements Runnable to the below class declaration. By doing this, Java makes available a complete set of Thread methods and exception handling features. The only other requirement of the Runnable interface is that the run method also has to be defined.

But, as you can see from Fig. 1, the run method is not very complicated. It prints out a message saying which object this thread is running with. Then the Thread.sleep() causes the thread to sleep for 480 times the number of the below object (the values in this program are from 1 to 3). Then the thread prints out a random number between 0 and 99, and then the thread is done. Now comes the interesting part: The just finished thread now waits its turn to start all over

Java Tutorial 12: Fig. 1

```

// Demo of Using threads with Runnable interface
import java.*;

public class Below implements Runnable {
    public static int cnt = 0; private int threadCnt;
    public Below () {
        cnt++; System.out.println("Defining thread no "+cnt);
        threadCnt = cnt;
    }

    // Must implement run () method to make thread work
    public void run () {
        try {
            while (true) {
                System.out.println("Thread-"+threadCnt);
                Thread.sleep ((long) (threadCnt * 400.00 * Math.random()));
                System.out.println("Last random="+100.00 * Math.random());
            }
        } catch (InterruptedException ex) {System.out.println("Interrupt exception" + ex);
        }

        public static void main(String [] args) {
            // Create 5 threads
            Thread t1obj = new Thread (new Below () ); t1obj.setDaemon (true);
            Thread t2obj = new Thread (new Below () ); t2obj.setDaemon (true);
            Thread t3obj = new Thread (new Below () ); t3obj.setDaemon (true);
            // then start them
            t1obj.start (); t2obj.start (); t3obj.start ();
            // and stop them
            try {
                System.out.println("Enter key character to stop");
                System.in.read ();
                System.out.println("End from routine");
            } catch (IOException ex) {}
        }
    }
}

```

again, repeating the run method over again. All three threads will alternate in an endless loop because none of the threads tells any of the others to stop.

However, our main program has been

clever. It has locked each thread back to itself by declaring each one as a daemon of main. So, when main stops, so will all its dependent daemons or threads. Our main program looks for a carriage return on input and then terminates itself. As soon as it does so, all its dependent threads are also terminated.

You can check that this is true by setting t1obj.setDaemon(false); and re-running the program. Now the second thread continues to spit out random numbers even though the main program (or, to it turns out directly itself) has stopped.

Why use threads

So what if threads are easy to do? Why and when do I need to use threads? Here are the answers. In graphics applications, animations use threads all over the place and the simple Runnable interface works well. In GUI apps, threads are often used with menu commands that

perform tasks like printing or backup, which can be spawned off so the main program can continue. GUI threads inherit from the Thread class or use a special case where the adapter class is made Runnable. And in Web and database applications, threads are integral to the sophisticated asynchronous process.

Users will find the latter programming quite complex (see Chapter 13 in Don Horvath's Beginning Java 2 for a sampling of the synchronization code). One danger in advanced threading applications is the possibility of deadlocks—the program freezes because two or more dependent threads cannot complete because each has resources the other needs. A second problem is damaged objects associated with near deadlocks. That has led to the deprecation and discontinuance of several thread methods in the Thread class. Thus users should avoid using:

```

destroy()
final, use put() or notify() and then yield() or to do equivalent.
suspend() / resume()
The pair of commands are replaced by notify() wait() and interrupt(), along with the synchronized keyword.
stop()
The command is replaced by setDaemon(), join(), sleep(), or explicitly throwing a Thread exception.

```

As the user will see in Learning Java or in the Thread Tutorial at www.sunetlink.com, handling threads can quickly become quite complex. Users who have to do complex thread programming should check out the Back Accounts applications in Don Horvath's Beginning Java 2.

It is important to know the basics around threads because users will be using them in applets and GUI programming. But again, be cautioned, thread programming—especially sharing of common resources like memory, disk space, queues, and logfiles (all of which are limited resources with potentially unlimited users)—requires great programming finesse and skill. So users are advised to be aware of the power and the limits to threads in their Java programming. □

Jaques Sawyer is a consultant and photographer; he can be reached at jaw@elliehof.com.

IBM patent winner for ninth year

NASHVILLION, T.C.—IBM Corp. was by far the most prolific patent recipient in 2001, leading a pack of other high-tech companies in the U.S. Patent & Trademark Office's top 13 list for the ninth year in a row.

IBM was awarded 3,413 patents for inventions in 2001, nearly 1,500 more patents than NEC Corp., the second-biggest patent winner last year.

The other top 10 patent recipients for 2001 were Canon, Micron Technology Inc., Samsung Electronics Co., Matsushita Electrical Industrial Co., Sony Corp., Hitachi, Microsoft and Fujitsu Ltd., respectively.

IBM said it was proud to become the first patent holder in history to be granted more than 3,000 patents in a single year.

"One of the biggest myths of 2001 was that innovation was dying along with the dot-com bust," said IBM senior vice-president Nick Donofrio. "The fact is that innovation is thriving in the research and development labs of corporate America and companies around the world, as this year's results confirm."

—Aerolitics



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Guide a roadmap for neophyte software development managers

By Keith Schengle-Roberts

If you work in a technical industry, sooner or later you are likely to find yourself managing a major project. Chances are you've had access to no management training, but you're expected to pull everything together, driving a team of people forward to get a project completed. So where do you turn? John Wiley & Sons hopes *The Accidental Project Manager* is what you've been looking for.

The Accidental Project Manager

Author: Patrick Draneoh
Publisher: John Wiley & Sons Inc.
1d 416-225-0422; www.wiley.com
ISBN 0-471-43013-X
Software: 260 pages, 2001
Price: \$24.98

Rating:

Information content: ****/5

Flexibility: ***/5

Intended for: Beginners/Intermediate

Overall rating: ***/5

Reading this book will give you the low-down on how to effectively manage a software development project from start to finish. If you've heard about software development standards like ISO 2000, 4-Sigma, and the Capability Maturity Model, but don't have the time to wade through the extensive official documentation, this book is a good enough summary of the "best practices" of each standard.

The book is divided into four sections: what to do prior to coding, the development process, deploying your product, and what to expect after its release.

The first section deals with the research and analysis necessary to decide the scope of a project and to get the buy-in from your managers before writing any code. It goes on to provide the reader with a basis for creating a project plan, how to recruit staff, learning about the audience for your program and creating a strong development team.

The development phase outlines how to collaborate with users on product design, developing test plans, organizing documentation, resolving personnel conflicts, and more.

The roll-out section offers advice on such things as finalizing features, turning over, managing publicity, and how to manage a team under deadline pressure.

The final, post-release chapters look at how to plan for ongoing software maintenance and enhancements, investigating unexpected bugs, and how to effectively evaluate the members of your development team. In short, it covers all of the likely scenarios you're likely to encounter when running a software development team, laying out the formal processes universally recognized in the industry for dealing with them.

The formal approaches taken in this book are not for everybody—software engineers in particular are notorious for playing by their own rules—but there's enough in here for a would-be manager to pick and choose those that best apply to a specific project.

What serves as a good roadmap of what situations to expect along the way and how to handle and document what you need to do. This is a good guide to the formal processes behind developing good software. □

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The Accidental Project Manager

Surviving the Transition From Technician to Manager

Patrick Draneoh

Subtitled *Surviving the Transition from Technician to Manager*, this book is aimed at techies—primarily software engineers—who have no management training but find themselves coordinating and managing a software development project. The author describes the book in a "cheat sheet" for software development—which isn't far from the truth, though this informal look at formal software development processes will be more accurate.

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